division of the rootstalk. A still more difficult case is the Bilsted (*Liquidambar styraciflua*). This tree can change its phyllotaxy with its branching; it may divide at the ground, sending up two stems, both of the same or of antidromic phyllotaxy; each stem may produce branches of both kinds, and the branches may bear secondary branches of their own or different spirality. Within any one branch, the phyllotaxy is definite, at $\frac{2}{5}$ divergence, one way or the other, for the bud scales of the annual innovations, as well as for all the leaves; and the order does not change within a branch, but between a branch and its sub-branches the order may or may not change. On the upper surface of the horizontal branches are the cork ridges which curve (irregularly) to right or left in harmony with the phyllotaxy of that branch.

The only explanation that occurs to me as possible is that Bilsted may have a latent tendency to produce both orders of phyllotaxy, that some slight inequality of nutriment may determine which shall start first, and that whichever gets the start is able to retain the preponderance for the particular branch, and the same influence is felt by the cortical growth. But the severe strictures of Sachs (*History of Botany*) on the old literature of phyllotaxy is a wholesome caution not to be speculating beyond the evidence; his criticism, however, is directed against theories invented by mathematicians, and not against those that would arise from a consideration of the plant's ontogeny.

G. Macloskie.
Princeton College, October 25, 1895.

TYPHOID FEVER DISSEMINATED THROUGH THE MILK SUPPLY.

The relation of milk to the spread of infectious diseases has been most strikingly shown in an epidemic of typhoid fever that occurred at Stamford, Conn., during this year, the official report of which has been recently issued by Prof. H. E. Smith. The evidence gathered shows beyond all question that the the disease was propagated by means of the milk supply, so that the epidemic possesses unusual interest for students in bacteriology and hygiene.

The epidemic broke out in April, and within six weeks 386 cases were reported in a town of about 16,000 inhabitants. Of this number, 65 cases or 16.8% were five years old or under, while over one-third of the total number were under ten years of age.

The mortality statistics of the State of Connecticut for the last 15 years show that less than 10% of the total number of deaths from typhoid have been under 10 years of age. In view of this, the large number of cases in early childhood has a peculiar significance in explaining the origin of the epidemic, as the infection of the milk supply would be more apt to manifest itself in infants than in adults. As soon as the milk supply was suspected, its sale was prohibited, and in fifteen days (about the usual period of incubation of this disease) after this prohibition went into effect the number of new cases dropped from an average of over ten a day to less than two. It was further shown that out of the total number of 386 cases, 352 or 91.2% lived in families that were supplied with milk from the same dealer. In 14 other cases milk from this same dealer was consumed by parties at a café and bakery. In 8 of the remaining cases milk was supplied the parties by the producer from whom the milk peddler obtained his supply. This makes a total of 97.1% of all cases that received the milk, either directly from the producer or indirectly through the milk dealer who peddled the milk. As the milkman in question only supplied about 9% of the total amount used in the town, the number of cases that developed on his route is of especial interest.

The evidence of a contaminated milk supply was overwhelming, but how to account

for the infection of the milk was not so easy. The milk might have become infected in the hands of either the dealer or the producer. Inasmuch as a few cases of the epidemic developed that were not supplied with milk from the dealer, but were supplied by other parties that had been using some of the milk cans in common with him, the presumption was strongly in favor of the view that the infection occurred while the milk was in the hands of the dealer. It seems that the dealer was in the habit of washing out his cans himself, and, while he obtained most of his supply from the producer in question, at times he secured an extra supply from other parties. No particular attention was paid to the cans that were used, so that they were often mixed up and returned to different parties after they had been cleaned by the dealer.

No case of typhoid had occurred at the house of either the dealer or the producer, so that direct infection of the milk did not seem probable. An examination of the water supply was then made. At both places shallow wells were found, that of the milk dealer's being only thirteen feet deep with nearly twelve feet of water in it. The well was surrounded on several sides by privies, an extremely foul one being within twenty-five feet of the well. It was the habit of the dealer to first rinse out the milk cans with water from this well, then they were thoroughly cleansed with hot water and soda, and finally *rinsed in cold water again that was taken from this well.*

Both the bacteriological and chemical examination of water from the two wells was made.

Neither of the wells were good and that of the milk dealer was grossly contaminated, having nearly 70,000 germs per cubic centimeter.

Typhoid bacteria were not discovered, but this is not surprising. It is possible that the privy near the well may have been used by some unknown person, as it was close to and easily accessible from a railroad. There is no positive evidence, however, that the water was contaminated except in the history of the epidemic. The evidence, however, is so strong that there can be no valid objection to the conclusion that milk was infected by washing the cans with contaminated water.

H. L. RUSSELL.

MADISON, WIS.

ELEVENTH INTERNATIONAL CONGRESS OF AMERICANISTS.

ON the fourteenth of October, in the beautiful Salón de Actos de la Escuela Preparitoria in the City of Mexico, was inaugurated a scientific meeting, not only memorable for our great sister Republic, but in many respects unique and *sui generis.*

Though to the official proceedings in Spanish reference must be made for an authoritative account of the mature work submitted to this august assemblage, yet the readers of SCIENCE may not be uninterested in a few words about the external and social aspects of the Congress.

The preliminary session on October 14th was remarkably well attended and was stamped by an air of elegance, distinction, prestige, which is by no means noticeable at our own science meetings.

The Cabinet Ministers of Mexico, the Ministers of the Great Powers of Europe and America, the Governors of the Mexican States, mingled with the men of science, made an array which we could not duplicate outside of Washington. The roll of the delegates was called, and each one presented his credentials, which were then scrutinized.

In accordance with Mexican social etiquette, the President of the Republic, Porfirio Diaz, was debarred from being present because of the recent death of his father-in-law, Romero Rubio.